

PUBLIC REDACTED

Exhibit

7

ATTORNEYS' EYES ONLY

Page 1

1 UNITED STATES DISTRICT COURT
 2 NORTHERN DISTRICT OF CALIFORNIA
 3 SAN FRANCISCO DIVISION

4 IN RE GOOGLE PLAY STORE : Case No.
 5 ANTITRUST LITIGATION : 3:21-md-02981-JD

6 This Document Relates To: :

7 State of Utah et al. v. :
 8 Google LLC et al. :
 9 Case No. 3:21-cv-05227-JD :

10 Match Group, LLC et al. v. :
 11 Google LLC et al. :
 12 Case No. 3:22-cv-02746-JD :

13 Epic Games Inc. v. Google :
 14 LLC et al. :
 15 Case No. 3:20-cv-05671-JD :

16 In Re Google Play :
 17 Consumer Antitrust :
 18 Litigation :
 19 Case No. 3:20-cv-05761-JD :

20 ** ATTORNEYS' EYES ONLY **
 21 TUESDAY, APRIL 4, 2023

22 Video Recorded and Remote Zoom
 23 Deposition of HAL J. SINGER, Ph.D., taken
 24 pursuant to Notice, at the law offices of
 25 Munger, Tolles & Olson LLP, 601 Massachusetts
 Avenue NW, Washington, DC, commencing at
 approximately 9:11 a.m., on the above date,
 before Rose A. Tamburri, RPR, CM, CCR, CRR,
 USCRA Speed and Accuracy Champion and Notary
 Public.

ATTORNEYS' EYES ONLY

Page 77

[illegible]

ATTORNEYS' EYES ONLY

Page 78

[illegible]

ATTORNEYS' EYES ONLY

Page 85

1 Logit model is known as the independence of a
2 relevant alternative's property?

3 A. Yes.

4 Q. And the independence of a relevant
5 alternative's property says that all products
6 being studied in the Logit model should be
7 substitutes in proportion to their share?

8 A. I think that's fair.

9 Q. Okay.

10 Now, if the indepen -- indepen --
11 if the -- well, let's back up.

12 Can we call it the independence of
13 a relevant alternative's property IIA?

14 A. Sure.

15 Q. Okay.

16 And if the IIA assumption is not
17 satisfied in the Logit model, then the Logit
18 model can lead to unrealistic forecasts; is
19 that right?

20 A. I'm not going to say so necessarily.
21 I think that it could produce estimates that
22 are different than the true parameters that
23 you're hoping to estimate, but I think the
24 word that you used was unreliable? And I
25 felt --

ATTORNEYS' EYES ONLY

Page 86

1 Q. Well --

2 A. -- I felt like that was too harsh.

3 Q. Well, let me just ask you this:

4 Does your Logit model satisfy the
5 IIA property?

6 A. I believe it does, yes.

7 Q. And if your Logit model does not
8 satisfy IIA, would that lead you to have any
9 concern that its forecasts are unrealistic?

10 A. Well, it would depend on -- on how
11 badly these assumptions were violated. So I
12 think that they're not. I think that the --
13 the groupings here were economically
14 reasonable. These are not my groupings; these
15 are Google's groupings that are then
16 self-selected by the -- by the apps.

17 And there are tests for IIA, I
18 think Haus -- Hausman and maybe McFadden have
19 developed a test. It's -- it has its flaws as
20 well. Those tests are not feasible here
21 because we don't have consumer level data.
22 We're -- we're just seeing the apps shares.
23 So we'd have to drop the entire app out of the
24 dataset, in which case you'd get the same
25 findings, and so you'd always affirm the IIA.

ATTORNEYS' EYES ONLY

Page 87

1 Your experts, of course, didn't
2 show that IIA wasn't satisfied through those
3 tests either, which I think is confirmation
4 that we can't do those tests. But I feel
5 confident the IIA is reasonably satisfied
6 here.

7 MS. GIULIANELLI: We can -- you
8 can continue on, but at some point, let's take
9 a break. We're -- I don't want to interrupt
10 your --

11 MR. RAPHAEL: I'm happy to take a
12 break now.

13 THE WITNESS: Great.

14 THE VIDEOGRAPHER: Going off
15 record, the time is 10:37.

16 (Whereupon, a recess was taken at
17 the above time.)

18 THE VIDEOGRAPHER: Going back on
19 the record. The time is 10:47.

20 BY MR. RAPHAEL:

21 Q. Dr. Singer, is it your opinion that
22 Google established the categories in the Play
23 Store with the IIA property in mind?

24 A. That is doubtful. I think the record
25 evidence tells us that Google established the

ATTORNEYS' EYES ONLY

Page 88

1 categories based largely on how Apple chose
2 its categories.

3 Now, it's possible that just as a
4 -- a pool player doesn't have physics in the
5 back of their mind, that they're -- they're
6 respecting the laws of physics. I think
7 that's a famous Bill Friedman quote, that when
8 Google is assembling its categories, it's
9 doing it in a way that satisfies the IIA.

10 But it certainly would be
11 astounding if -- if they had, if some
12 marketing person had the IIA at the top of the
13 mind when they were selecting the categories.

14 Q. Right.

15 Because to your knowledge,
16 Google's decision with -- to establish the
17 categories in the Google Play Store was made
18 as a matter of marketing?

19 MS. GIULIANELLI: Objection to
20 form.

21 THE WITNESS: I think -- I think
22 that as I just stated, the record evidence
23 suggests that Google was -- [REDACTED]
24 [REDACTED], and
25 I think that ultimately Google wants to

ATTORNEYS' EYES ONLY

Page 89

1 maximize the profits of the -- of the Play
2 Store, and so it wants consumers to be able to
3 find things easily and sensibly and it's --
4 it's profit drivenal; how about that?

5 BY MR. RAPHAEL:

6 Q. And in trying to maximize the
7 profitability of the Play Store, Google
8 established the categories by reference to the
9 categories in the Apple App Store; is that
10 right?

11 A. In part, yes. That Google -- that
12 Apple made presumably intelligent choices,
13 Apple's App Store was doing well and -- and
14 Google figured that [REDACTED]

15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED].

19 Q. Okay.

20 If the IIA assumption is not
21 satisfied, then the Logit model can lead to
22 unrealistic forecasts.

23 Do you agree with that?

24 A. No, I think -- I think you asked me
25 that earlier, and I think that it depends on

ATTORNEYS' EYES ONLY

Page 90

1 the degree to which it's not satisfied, right?

2 In any econometric model, just
3 even ordinary lease squares, we -- we -- we
4 make all sorts of demands on the nature of the
5 error terms in the model, just as we do here.
6 And there are -- there are errors, there are
7 violations and there are other violations.
8 And so I wouldn't -- I wouldn't condemn it
9 based on -- on some small violation.

10 I think -- I think that if the
11 categories were haphazardly assigned or done
12 without any kind of economic logic such that
13 consumers did not perceive, or at least some
14 consumers did not perceive the elements to be
15 substitutes, that -- that you could get
16 unreliable forecasts.

17 Q. Okay.

18 So if consumers do not believe
19 that the products being studied in the Logit
20 model are substitutes, you can get unreliable
21 forecasts?

22 MS. GIULIANELLI: Objection to the
23 form.

24 THE WITNESS: I think that the
25 better -- the better requirement, or the more

ATTORNEYS' EYES ONLY

Page 91

1 formal requirement, is that if -- if this
2 property of substitution that is at the heart
3 of Logit, which is this proportional
4 substitution, that people tend to go places
5 with higher shares, then you could get a less
6 accurate forecast than -- than -- than you
7 would hope.

8 I think that unreliable is -- is
9 fairly strong language, so I'm reluctant to go
10 that far.

11 MR. RAPHAEL: Okay.

12 BY MR. RAPHAEL:

13 Q. And what is the standard for when IIA
14 has been violated to such a degree that you
15 think that the -- using the Logit model would
16 lead to forecasts that are inaccurate?

17 A. So here's some things I -- I would
18 want to look for, is did the categories make
19 economic sense, all right? Is there -- is
20 there good economic basis to believe that both
21 the developers and the consumers perceived
22 those cat -- categories to define the contours
23 of competition? And I think we have that
24 here.

25 But the second thing that I'd want

ATTORNEYS' EYES ONLY

Page 95

1 trying to predict are, say, the -- the
2 predicted shares within a category and he
3 thinks that those forecasts could be off,
4 that's not the forecast that I'm making. So
5 it's just the word "forecast" is so general
6 that it's hard for me to -- to say that it has
7 much relevance here.

8 Q. Do you agree that the Logit model can
9 produce seriously misleading forecasts if IIA
10 fails?

11 A. Seriously misleading forecasts?

12 Q. Um-hmm.

13 A. Well, so here we're trying to predict
14 pass-through rates, and I don't think that our
15 pass-through rate forecast is going to be
16 seriously misleading for some minor infraction
17 of the IIA. And in particular, you know,
18 what's happening is that on a technical
19 matter, we're -- we're concerned about some
20 unobserved attribute being correlated with the
21 error terms. But if the groupings are done in
22 an intelligent fashion, all these error terms
23 are going to cancel. They're going to wash
24 out.

25 And so I feel like -- I feel like

ATTORNEYS' EYES ONLY

Page 96

[illegible]

ATTORNEYS' EYES ONLY

Page 97

[illegible]

ATTORNEYS' EYES ONLY

Page 102

1 intent that was at the front of my mind was
2 will the Logit model do a good job or a bad
3 job at explaining substitution patterns within
4 a given category, right? And implicit in that
5 objective is whether the IIA was satisfied.

6 Q. Did you cite any published economics
7 article in your reports to establish that it's
8 appropriate to test the IIA assumption using
9 the kind of regression that you did?

10 A. I don't think I've cited articles in
11 my report that my test was a test of IIA. I
12 think that I feel confident that IIA was
13 satisfied by virtue of the fact that Google
14 selected the categories, the developers
15 selected in, the model fit well and then
16 finally, I tested the model under other demand
17 specifications.

18 There was quite literally nothing
19 else that I could do and there was nothing
20 that your expert did in rebutting it, zero.

21 Q. Right.

22 A. Nothing. Dr. Leonard did no test of
23 the IIA.

24 Q. Right.

25 Other than the regression that you

ATTORNEYS' EYES ONLY

Page 103

1 did, there was no way for you to test whether
2 the IIA assumption was met; is that right?

3 A. No, that's not right. You're not --
4 you're not hearing what I'm saying.

5 I have confidence that the IIA was
6 satisfied because these are economically
7 sensible categories that were designed by
8 Google, that were selected into by the
9 developers. And then when we go to do the
10 actual fit, had the results come back
11 differently, had the coefficients been the
12 wrong sign, had they not been significantly
13 significant, had the R-squareds been low, and
14 then had another demand model done a better
15 job at explaining the variation of the
16 substitution patterns in the data, I would
17 have abandoned Logit.

18 Q. Okay.

19 Other than your regression, was
20 there any test you are aware of that you could
21 have applied to determine whether the IIA
22 assumption was met?

23 A. Yes, and I now feel like I'm
24 repeating myself. There is the
25 Hausman-McFadden test.

ATTORNEYS' EYES ONLY

Page 104

1 Q. But you couldn't apply that here,
2 could you?

3 A. Let me finish. Let me just finish.

4 Yeah, the Hausman-McFadden test
5 requires you to drop all consumers from the
6 data who selected a particular choice and then
7 re-estimate the model and -- and compare the
8 coefficients, right?

9 Yes, you cannot do that here
10 because we don't have that kind of granularity
11 in the data.

12 Q. Are you aware of any source in
13 economics that indicates that it is an
14 appropriate and reliable way to test for the
15 IIA assumption to do the kind of regression
16 that you did here?

17 A. I don't think that that's how you'd
18 find it in a textbook. I think that the way
19 that an econometrician would counsel you is
20 you have an assumption about how consumers
21 choose within a category; right? If the model
22 doesn't fit well, then that would tend to
23 indicate that assumption is violated. But it
24 starts with the -- with the goodness of fit of
25 the model itself.

1 Q. Okay.

2 Are you aware of any source in
3 economics that indicates that it's a reliable
4 way to test for the IIA assumption to do the
5 kind of regression that you did?

6 A. Let me hear it back. I'm sorry.

7 Q. Are you aware of any source in
8 economics that indicates that doing the
9 regression that you did is an appropriate and
10 reliable way to test for whether the IIA
11 assumption is met?

12 A. I don't know if -- if I can point
13 you, sitting here, to an economic source for
14 that proposition, but what -- what economics
15 counsels is that to determine whether a model
16 is appropriate, you need good economic
17 foundation and you need a goodness of fit in
18 the data.

19 And then finally, what I did is I
20 tried alternative specifications. I don't
21 think there's anything else that we can do.

22 Q. Okay.

23 Are you aware of any source in
24 economics that goodness of fit is an
25 appropriate way to test for the IIA

1 assumption?

2 A. No. The way that the economics will
3 tell you is that goodness of fit will tell you
4 if the Logit is a -- is a -- is the relevant
5 way to describe preferences in substitution
6 patterns here.

7 Now, IIA is lurking in the
8 background of all of that.

9 Q. Right.

10 But you're not aware of any source
11 in economics that goodness of fit is an
12 appropriate way to test for the IIA assumption
13 directly?

14 MS. GIULIANELLI: Objection to the
15 form.

16 THE WITNESS: I think that if you
17 go into the economic literature and you see
18 the vast application of Logit in antitrust,
19 mergers in particular, I think that for an
20 economist or an agency, or an agency's
21 economist to feel good about using Logit, what
22 they care most about is whether the categories
23 were constructed intelligently and with a good
24 grounding in economics and in -- in record
25 evidence.

ATTORNEYS' EYES ONLY

Page 107

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ATTORNEYS' EYES ONLY

Page 113

[illegible]

ATTORNEYS' EYES ONLY

Page 114

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ATTORNEYS' EYES ONLY

Page 115

[illegible]

ATTORNEYS' EYES ONLY

Page 116

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ATTORNEYS' EYES ONLY

Page 117

[illegible]

[illegible]

[illegible]

ATTORNEYS' EYES ONLY

Page 122

[illegible]

ATTORNEYS' EYES ONLY

Page 123

1 would -- that would somehow not move, and it's
2 something below a half a percent. It's de
3 minimus.

4 Q. Right. So let's -- let's look at
5 that. That's page 203 of your opening Merits
6 report.

7 A. Okay.

8 Q. And this is Table 17.

9 A. Yes.

10 Q. So you find there that some non-zero
11 amount of developers would not reduce their
12 prices if they were committed to having their
13 prices end in 9; isn't that right?

14 A. Correct.

15 Q. Do you know how many developers
16 that -- that amounts to?

17 A. Sitting here, I don't, but it's --
18 should be easy to figure out the backup.

19 Q. Did you run a version of this table
20 in your reports with the assumption that
21 developers would want to set prices ending in
22 99?

23 A. I did not.

24 Q. Okay.

25 And do you know the percentage of

[illegible]

ATTORNEYS' EYES ONLY

Page 134

[illegible]

ATTORNEYS' EYES ONLY

Page 146

[illegible]

ATTORNEYS' EYES ONLY

Page 147

1 you tried to do the derivative in your head.

2 I think that when you look at the
3 traditional models of pass-through, which,
4 remember, are a derivative of the -- if you
5 think of it as a derivative of the Lerner
6 index, it's -- it's looking at how the profit
7 maximizing price changes in response to a
8 change in cost.

9 And then you look at the most
10 common functional forms. You'll often see
11 that marginal cost drops out of the
12 pass-through equation.

13 BY MR. RAPHAEL:

14 Q. Well, does it drop out when you're
15 looking at an ad valorem cost?

16 A. In this case, it drops out of the
17 pass-through equation, yes.

18 Q. Okay.

19 And can the amount of a
20 developer's marginal cost, other than the
21 service fee, affect the amount of
22 pass-through?

23 A. Not under the Logit model that I'm
24 using. It's conceivable it could in others,
25 but in my Logit model -- not -- in the Logit

ATTORNEYS' EYES ONLY

Page 150

1 The most -- I mean, the most
2 obvious one would be processing fees. But
3 there are other marginal costs, royalty fees
4 that they pay, but -- but I haven't estimated
5 those at the developer level.

6 Q. One of the inputs into your
7 pass-through model is Google's market share in
8 a world without the challenged conduct.

9 A. Not in the pass-through model. Did
10 you mean to say -- it certainly -- Google's
11 market share is in Rochet-Triole and it's in
12 Landes-Posner.

13 Q. Yes. One of your inputs into
14 calculating what Google's but-for service fee
15 would be is Google's market share in the
16 but-for world.

17 A. Correct.

18 Q. And you estimated that share to be 60
19 percent; right?

20 A. I -- I used as an input the
21 60 percent because that's the best that the
22 economic literature in busting up monopolies
23 can -- can give to us.

24 I also, you know, would note --
25 yes, that is -- that is the best estimate that

ATTORNEYS' EYES ONLY

Page 151

1 I could find in the literature.

2 Q. Okay.

3 And that market share estimate is
4 based on an article that attempted to estimate
5 AT&T's market share in the longest in its
6 telephone market in the 1980s?

7 A. Yes, with one important caveat that
8 you left out, which was after AT&T's
9 anti-competitive tie was unwound, right?

10 What I -- what I was looking for
11 was the closest analogue in antitrust history
12 in which a dominant firm that had extended its
13 leverage from one market into another was
14 forced to unbundle or break apart the tie.
15 There aren't a lot of such episodes, right, in
16 the history of antitrust for reasons that we
17 could describe -- discuss over coffee, but we,
18 in any event, it's a network industry; it's
19 the monopoly, where the tie gets removed.
20 It's been studied ad nauseam by economists
21 for -- for the price effects that can be
22 attributable. And so I thought that
23 60 percent was the best estimate.

24 And in any event, it turns out
25 my -- my in-app model for damages is not that

1 sensitive to the 60; that is, as you put in
2 different inputs for 60, you go to 70 or if
3 you think that Google share would have fallen
4 to 50, it just turns out that the model is not
5 that sensitive to that input.

6 Q. Well, do you disagree that if
7 Google's but-for market share is 75 percent,
8 that your damages figure falls by over
9 40 percent?

10 A. No, it wouldn't. It would not.

11 So you're saying if all you did --
12 see, what -- what Dr. Leonard, respectfully,
13 did was that he kept changing two parameters
14 at a time. He kept changing the but-for share
15 and the actual share. If he held everything
16 constant for Landes-Posner, if you change just
17 the but-for share, say, by 10 percentage
18 points, you get, depending on which direction
19 you go, you get something on the order of a 5
20 percentage point swing in damages.

21 And so what -- what that's telling
22 you is that the input is important, but the
23 results don't vary significantly, or let's
24 just say the results aren't amplified based on
25 the change in this input; that they're, in

[illegible]

[illegible]

ATTORNEYS' EYES ONLY

Page 163

1 opting in and participating in a loyalty
2 program, and if the benefits for doing so are
3 paltry, that could affect how many people take
4 advantage of the program.

5 Q. Right.

6 There are costs to opting into a
7 rewards program; right?

8 A. Yes.

9 Q. Okay.

10 And in the -- in your Play Points
11 damages model, you assume that all Play Store
12 users would have signed up for the Play Points
13 program?

14 A. No.

15 Q. You don't?

16 A. No, not necessarily. What I'm trying
17 to solve for is the extent of a subsidy that
18 Google would have offered across -- in the
19 aggregate across all users, but I don't think
20 that I'm necessarily assuming that each user
21 avails itself. It's possible that it would,
22 but my -- my damages model for aggregate
23 damages is looking at the savings to the class
24 if Google were to be more generous in its
25 subsidy program.

ATTORNEYS' EYES ONLY

Page 164

1 Q. Your Play Points model measures the
2 damages that consumers would have incurred in
3 the aggregate?

4 MS. GIULIANELLI: Objection to the
5 form.

6 THE WITNESS: I think that my
7 model is being offered for an estimate of
8 aggregate damages, among other things; I think
9 it also speaks to injury and impact. But I --
10 I -- I believe that that -- that -- that
11 parameter that comes out that we're interested
12 in, which is the price on the consumer side of
13 the market, is telling you across all
14 consumers, this is -- this is what -- what --
15 what Google will pay.

16 BY MR. RAPHAEL:

17 Q. Does your Play Points model tell the
18 jury how much a user who did not sign up for
19 Play Points in the actual world was damaged?

20 A. You could estimate, for a given
21 member of the class, you could estimate what
22 the reduction in -- in his or her net payments
23 would be relative to what they spent in the
24 actual world. And you wouldn't abandon that
25 exercise simply because they didn't use Play

1 Points in the real world. In the real world,
2 the reason why most people or many people
3 didn't use it is because Google was so skimpy
4 with the offering.

5 In a but-for world in which Google
6 is forced through competition to employ a more
7 generous points model, including making the
8 enrollment easier, they'd -- they'd be forced
9 to. Under -- in a competitive market, it
10 would be reasonable to assume that -- that
11 most, if not all, consumers in the class
12 would -- would partake and -- and take
13 advantage of that -- of that program.

14 Q. Are you offering the opinion that all
15 users in the but-for world would have signed
16 up for the Google Play Points program?

17 A. Economists tend to be reluctant to
18 say all, like do I know with certainty or to a
19 reasonable certainty that every single class
20 member signs up? I don't know if the model
21 can tell us that.

22 What the model is telling us is
23 what's the -- what is the aggregate or average
24 subsidy that Google offers. And I think that
25 it is reasonable to infer that if the subsidy

ATTORNEYS' EYES ONLY

Page 166

1 gets sufficiently large such that it is a
2 meaningful reward, that most, if not all,
3 consumers will take advantage of it in the
4 but-for world.

5 Q. Have you estimated what portion of
6 users would have signed up for the Play Points
7 program in the but-for world?

8 A. I feel like that question is no
9 different from the -- from the last.

10 I have not given an empirical
11 estimate of the proportion. I think it's very
12 high, it could be close to 100 percent, but
13 there's no requirement that it's a hundred
14 percent for the model to -- to hold.

15 Q. If I were to come to you with a user
16 chosen at random from the data that you've
17 looked at of people that used the Google Play
18 Store, could your model tell me whether that
19 user would have signed up for the Google Play
20 Points program in the but-for world?

21 A. I don't think the model tells you
22 whether a user will sign, but what the model
23 can tell you is what the subsidy, what the
24 predicted subsidy would be for that user. And
25 if the subsidy is as large as these models are

ATTORNEYS' EYES ONLY

Page 167

1 implying, whether it's the Rochet-Triole model
2 or the Amazon model, these are big numbers;
3 we're talking about [REDACTED] percent savings.

4 It seems like a safe inference is
5 that if a -- if Google wants to credit you
6 between [REDACTED] and [REDACTED] percent, I'm going by
7 memory, of the -- of the price of partaking in
8 all the fun of its Play Store, that most, if
9 not all, consumers will avail themselves of
10 that option.

11 Q. Have you calculated the minimum value
12 of the Play Points subsidy that would be
13 necessary to get any consumer to sign up for
14 Play Points?

15 A. I haven't calculated it down to the
16 decimal, but my opinion is this; that in the
17 actual world, with a -- with a paltry subsidy
18 of [REDACTED], you see many people not
19 availing themselves of the option.

20 In a but-for world where the
21 subsidy is in the order of [REDACTED] percent,
22 if we -- if Google matches Amazon, I think a
23 safe inference is that all or almost all
24 consumers will avail themselves of that
25 option.

ATTORNEYS' EYES ONLY

Page 168

1 Q. Well, your Play Points model, though,
2 is about the percentage of the price that
3 would be credited back to consumers, not the
4 percentage of Google's revenue; right?

5 A. Oh, no, no, no. Hold on. We're on
6 the same page, I think. It's the percentage
7 of the price from the consumer's perspective;
8 right?

9 Q. Right.

10 A. And so if -- if in a but-for world,
11 Google takes its subsidy from, say, [REDACTED]
12 [REDACTED] to [REDACTED], right, that is a
13 material change in the terms of the program,
14 at which point you're looking at all your
15 friends who are getting [REDACTED] off and you
16 say hey, sign me up, I'll take some of that,
17 too.

18 Q. Right.

19 Have you calculated the percentage
20 credit on the price that would be necessary
21 for any consumer to find it worth it to
22 overcome the cost of signing up and sign up
23 for the Play Points program?

24 A. I haven't calculated the percentage,
25 but I will say that in a but-for world where

ATTORNEYS' EYES ONLY

Page 169

1 Google is going head-to-head with a -- with a
2 competitor who is competing on this dimension,
3 whether it's Amazon or Facebook or Samsung,
4 that Google would make sure that whatever
5 enrollment costs there were, they would not be
6 so prohibitive as to allow that rival to eat
7 their lunch.

8 Q. Have you done any analysis of the
9 elasticity of demand for the Play Points
10 program?

11 A. I have done elasticity of demand of
12 consumers with respect to pricing in the App
13 Store. So to the extent that Play Points or
14 any subsidy changes pricing, you could figure
15 out what the sensitivity would be.

16 Q. But you haven't tested whether what
17 happens when Google changes its Play Points
18 subsidy and how that affects whether people
19 sign up for the Play Store -- for the Play
20 Points program; you haven't done that?

21 A. Well, it's a bit of a trick question
22 here, because Google has been at -- at this
23 paltry [REDACTED], you know, since the advent
24 at least in the U.S.

25 Now, there are some experiments

ATTORNEYS' EYES ONLY

Page 170

1 that you might be able to look at. In Korea
2 and Japan, I think that Google tried to meet
3 the limited competition that -- that occurred
4 there with an increase in the subsidy. But I
5 haven't studied -- I haven't studied what the
6 reaction would be.

7 I think it's safe to infer that
8 Google felt, and this is just kind of basic
9 economics, that Google felt compelled to meet
10 the competition because they feared that if
11 they didn't -- if they weren't competitive on
12 that dimension, they would lose customers.

13 Q. Your Play Points model also uses the
14 elasticity of demand from an article about
15 AT&T long distance in the 1980s?

16 A. That's of the rival elasticity,
17 that's right.

18 Q. Right.

19 And that's drawn from the same
20 article as the article where you got the
21 but-for share for Google; right?

22 A. Correct.

23 Q. And you didn't calculate the
24 elasticity of demand in the but-for world
25 yourself?

ATTORNEYS' EYES ONLY

Page 171

1 A. Well, this is -- remember what we're
2 talking about is the rival supply elasticity.
3 So Google by the tie doesn't allow any rival
4 to enter and expand, and now you're asking me
5 where's your -- where's your model, Singer,
6 for how PayPal or Stripe, you know, would have
7 responded to an increase in Google's price.
8 They couldn't come in by virtue of the tie.

9 So I don't think that -- that
10 life, by virtue of Google's restrictions and
11 the challenged conduct here, is going to allow
12 us to test for rival supply elasticity
13 particularly in the but-for world.

14 Q. You didn't present your Amazon Coin
15 damages model at the class certification
16 stage?

17 A. That's correct.

18 Q. Why not?

19 A. I don't think that I had data at
20 that -- at that time to estimate Amazon's
21 subsidy.

22 Q. And your Amazon Coins damages model
23 is used for calculating aggregate damages?

24 MS. GIULIANELLI: Objection to the
25 form.

ATTORNEYS' EYES ONLY

Page 172

1 THE WITNESS: Correct. That --
2 that's fair, among other things. But I think
3 that the primary purpose here, now that we're
4 at the merits, is what the -- what aggregate
5 damages are.

6 BY MR. RAPHAEL:

7 Q. And if I -- again, if I took a user
8 at random from the -- from the data on the
9 users of the Google Play Store, could your
10 Amazon Coins model tell me whether -- how much
11 in subsidy that consumer would have received?

12 A. Yes.

13 Q. And could it tell -- and -- and is
14 your idea that the subsidies in your Amazon
15 Coins model would have been part of a program
16 that all users would have signed up for?

17 A. I think that once you get into the
18 [REDACTED] range, I think that it would be
19 irrational and illogical for a consumer to
20 pass up that savings. They would figure out a
21 way to get enrolled.

22 Q. Okay.

23 But you -- again, you haven't
24 studied, with respect to your Amazon Coins
25 model, the percentage of savings that would be

ATTORNEYS' EYES ONLY

Page 180

1 models and I think they're both reasonable.

2 Q. So you can't say whether it's more
3 reliable for the -- to estimate damages at the
4 [REDACTED] that you have for the
5 Amazon Coins model or the [REDACTED]
6 that you have for the Play Points model?

7 A. No. And you keep -- you keep going
8 back to the difference in the magnitude.
9 That's just because we have such a large base
10 of spending.

11 What we're really trying to figure
12 out is as we toggle between the [REDACTED] of
13 the Play Points and [REDACTED], which is about
14 [REDACTED], should we -- should we
15 credit Google with an incumbency advantage or
16 should we not.

17 I think there are legitimate
18 arguments that would suggest that if entry by
19 a rival were to occur early enough in the
20 place for experience, then it would be -- it
21 would be too charitable to Google to credit it
22 with an incumbency advantage, right? If
23 Google were facing a rival right out of the
24 gate, right, what's the source of its -- of
25 its incumbency advantage?

ATTORNEYS' EYES ONLY

Page 181

1 Q. Have you formed an opinion as to
2 which of the numerous different damages models
3 that you have is the most reliable one for the
4 jury in this case?

5 A. I think it's -- it's hard to compare
6 models that are meant to do different things,
7 right? We've got some models that are meant
8 to -- to come up with but-for take rates and
9 pass-through in the -- in the primary market.
10 We've got a different model that's meant to
11 predict the but-for take rate in the
12 aftermarket.

13 I don't know how one would say
14 that one is better than the other. I feel
15 like these are the best that economics has to
16 offer for each of the -- each of the problems
17 that I've been given.

18 Q. Did you consider using any other App
19 Store as a benchmark for your subsidy model
20 rather than the Amazon App Store?

21 A. It's -- it's certainly possible I
22 considered. One -- one problem that I had,
23 for example, with the ONE Store is that the
24 ONE Store is competing along both dimensions.
25 I think they took their take rate down and

ATTORNEYS' EYES ONLY

Page 182

1 they did a more generous subsidy program. And
2 remember, in this -- when we go down this
3 branch of the tree, we're thinking about
4 competition that only occurs on one dimension;
5 namely, take rate.

6 And the second thing that -- that
7 worried me about ONE Store is that it's --
8 it's specific to Korea and Amazon was -- was
9 global. And so I felt that -- that we just
10 didn't have as good of a benchmark as Amazon
11 for -- for that parameter.

12 Q. Okay.

13 A. Oh, there's one more reason, too, is
14 that I don't think we have the magnitude of
15 ONE Store's subsidy. We have the dollar
16 amount, I found press articles that said it's
17 X hundreds of millions of dollars, but I --
18 I -- I wasn't able to -- to generate a -- a
19 subsidy in terms of percent of spend for ONE
20 Store.

21 Q. Okay.

22 MS. GIULIANELLI: Pretty soon we
23 can take a break for lunch.

24 MR. RAPHAEL: Sure.

25 BY MR. RAPHAEL:

ATTORNEYS' EYES ONLY

Page 183

1 Q. Did you -- did you analyze whether
2 any of the benchmark App Stores in Table 7
3 offer subsidies and whether you could use
4 those as benchmarks?

5 A. I did not.

6 Q. Okay.

7 Just a couple more questions and
8 we can take a break for lunch.

9 A. Okay.

10 Q. Now, users sign up for Play Points
11 and then they earn points when they make
12 purchases; right?

13 A. Correct.

14 Q. And Amazon Coins have to be purchased
15 separately?

16 A. Correct.

17 Q. Did you consider whether that
18 difference could affect whether the Amazon
19 Coins program is a proper benchmark?

20 A. I certainly considered it, and I just
21 want to make clear that in my -- in my but-for
22 world under this model, I am not positing that
23 Google mimics Amazon's program verbatim,
24 right. I recognize there are differences in
25 the program.

ATTORNEYS' EYES ONLY

Page 187

1 A. Close. It's just -- yeah, the share
2 of that developer within its category, that's
3 right, its market share.

4 Q. Right.

5 And so what the regression is
6 looking at is if the developer changes its
7 price, does that reduce its share of the app
8 category; right?

9 A. Right. Implying that -- that there
10 would be substitution away from that app
11 towards what consumers perceive to be
12 substitutes.

13 Q. Right.

14 And does the regression that you
15 ran that looks at the change in price and its
16 effect on the developer's share of its
17 category tell you anything about where the
18 substitution, as you put it, comes from?

19 A. Where it comes from is, of course,
20 the app who is raising the price. Did you
21 mean to say where it's going? I don't --
22 where it's coming from --

23 Q. Ah, thank you for that.

24 A. Okay.

25 Q. I'll ask a better question.

ATTORNEYS' EYES ONLY

Page 188

1 A. Okay.

2 Q. So your regression that you ran in
3 connection with your Logit model, does it tell
4 you where, when a developer raises its price,
5 where consumers will substitute to within the
6 category?

7 A. This -- this particular model, or at
8 least for this purpose of a model, or this
9 stage of the model, it is simply telling you
10 that the developer loses share. But once you
11 know that the model fits and is the best
12 demand system for the data, you can infer that
13 users are moving around the category in
14 proportion to the market share of the -- of
15 the other goods.

16 Q. Okay.

17 But the regression is one of the
18 things you used to determine the fit of the
19 model; right?

20 A. Correct.

21 Q. Okay.

22 And the regression, itself, does
23 not tell you when a developer raises its price
24 or lowers its price, I guess, to which apps do
25 the other -- do the consumers substitute;

ATTORNEYS' EYES ONLY

Page 189

1 right? It doesn't tell you that?

2 A. Correct.

3 Q. Do you agree that the relevant
4 product market should include all competitive
5 constraints?

6 A. No.

7 Q. Is product quality --

8 A. Can I -- also, can I just say why? I
9 mean I --

10 Q. Sure.

11 A. Just to be clear, you don't need to
12 include all competitive constraints because
13 there could be some very weak constraints that
14 don't prevent the exercise of market power.

15 So if the guidelines are telling
16 you to include only those that are necessary
17 in order to effectuate a price increase over
18 competitive levels, so that was the only part
19 I was pushing back on.

20 It's not all competitive
21 constraints, right? It's not every one under
22 the sun. And maybe we could define what you
23 mean by competitive. But -- but I took it to
24 mean literally any competitive including weak,
25 right? We don't need weak constraints to be

[illegible]

ATTORNEYS' EYES ONLY

Page 418

[illegible]

ATTORNEYS' EYES ONLY

Page 419

[illegible]

[illegible]